THE PLANT DISEASE BULLETIN

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THE PLANT DISEASE SURVEY

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U.S. Dept. of Agriculture

Volume V. Number 2

July 15, 1921

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

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Vol. V. July 15, 1921. Number 2.

Leaf rust of wheat unusually abundant this year. (Page 24)

A Fusarium root-rot of wheat reported by W. W. Mackie as serious in certain localities of California. (Page 27)

"Whiteheads" of wheat, barley, and rye associated with a root rot of some kind was the cause of loss in Oklahoma. (Pages 27, 28, and 29)

Leptosphaeria on California wheat has been determined by A. G. Johnson. The fungus seems to be producing a disease of economic importance. (Page 27)

Head smut of rye collected for the first time in New York. (Page 28)

An apparently new and undetermined root rot of rye observed by H. S. Jackosn in Indiana. (Page 28)

Apple blotch reported as gradually progressing northward in Ohio. (Page 29)

Bacterial spot of peach abundant again this year in Indiana. (Page 32)

Dr. James Johnson, of the Experiment Station at Madison, Wisconsin would like specimens and reports of tobacco diseases from any or all parts of the country. Collaborators and others are asked to do what they can in the way of securing data on diseases of this crop and reporting the same to this Office or to Dr. Johnson.

CEREALS

WHEAT

Bunt caused by Tilletia laevis and T. tritici.

No reports have been received of more than very slight damage caused by bunt, although in Oklahoma the disease was said to be serious in fields where it occurred, as much as 30% infection having been observed.

A report received from E. C. Stakman and W. N. Christopher indicate general and severe infection of bunt in the vicinity of Saltillo, State of Coahuila, Mexico. The reduction in yield was estimated as ranging up to 25%.

Loose smut caused by Ustilago tritici.

It is difficult to tell, from the few reports at hand, how loose smut compares in prevalence with average years. H. S. Jackson thinks it is more abundant than usual in Indiana and R. C. Thomas found it in quantity in parts of Ohio. R. S. Kirby, who has been examining many wheat fields in New York, states that this disease is very common and some fields are found with high percentages (10-15%). In Mexico, Stakman and Christopher reported general but slight infections in the vicinity of Saltillo.

Indiana: Loose smut is more abundant, generally speaking, than usual when the whole state is taken into consideration. In this connection it has been interesting to note that wheat treated with hot water in 1919, while it gave a clean crop in 1920, is showing an abundance of smut this year, indicating that under favorable conditions for infection smut may increase very rapidly in treated wheat. It is practically impossible to get seed plots isolated and I am now inclined to think that smut may carry for some distance, especially in bright weather when there is a good breeze. I see no reason why this should not be true, though I do not believe we have very much data on how far the loose smut will spread. (Jackson, June 27).

Tennessee: Loose smut of wheat this season caused a very slight damage, about .25%, ranging from .05% to 1%. A possible explanation of such small damage is that the wet weather during the time of blooming of wheat last year might have prevented a serious infection with the smut. (Sherbakoff, June 15).

Ohio: In Darke County loose smut infections were very marked, especially in fields planted with the Goens variety. In two fields I found loose smut infection ranging from 9-16%. (Thomas, June 27).

General over state; of moderate importance, 0-8% of heads affected. First observed May 21, southern Ohio. (Clayton, June 15).

Stem rust caused by Puccinia graminis.

It is still too early to report on the damage stem rust will do to the spring wheat crop but as far as winter wheat is concerned the disease will not be an important factor in reducing yield except possibly in a few very limited localities. Reports received would indicate a smaller amount of stem rust than usual in winter wheat states.

Virginia: One case severe infection reported from Wythe County. Quite late in appearing at Blacksburg and found in only slight amounts. None seen in a number of fields in other sections which were inspected shortly after blooming period. (Fromme, July 1).

West Virginia: Quite severe in the southeastern part of the state. Mr. Berg found good evidence of its spread from sections where the barberry was found to sections some distance away. The disease was evidently less serious and in an earlier stage in the distant fields. (Giddings, July 1).

Kentucky: Appeared in the northern half of Kentucky about one to two weeks before harvest. No record of southern half of state. At the Experiment Station at Lexington it was in sufficient quantity to cause injury to certain pure lines. Ashland, a selection of Jersey Fultz, proved practically immune to black stem rust at Lexington, while other strains in the same field were severely rusted. (Valleau, July 1).

Tennessee: (Observations made during April, May, and June in the vicinity of Knoxville, Murfreesboro, Columbia, Nashville, Jackson, and Union City.) Stem rust in many fields could not be found at all, even in the latter part of May and early in June, that is, shortly before harvest time this year. Usually an occasional plant affected with the rust could be found, especially on the border plants that yet remained green. Only in one field, on the farm of the Normal School at Murfreesboro, the rust was found, June 4, in a severe form in a low part of one field. The rest of the field, in the higher part of it, was nearing full maturity and was practically free from the rust. The wheat specimens brought in by the Knox County Agent, and his information in regard to other fields, showed that some fields in East Tennessee were seriously injured by the rust, the damage in some exceptional fields being as high as 30%. The damage for the State would be considered at about 3%. (Sherbakoff, June 15).

Arkansas: More than usual, probably little damage. (Elliott, July 1).

Ohio: The counties of Coshocton, Muskingum, Ross, Pickaway, Darke, and Van Wert were visited. I was surprised to note the serious loss due to black stem rust in Ross County. While infection was general throughout the county, severity of losses was somewhat localized. In some three or four fields I estimated the loss at 25% due to the black stem rust alone. (Thomas, June 27).

Indiana: There is at the present time a scattering of stem rust, though I have seen no serious outbreak. Barberries in some sections of the state were abundantly affected and I am leaving today for Lagrange County where I will look into that general situation with Mr. Hosmer. There are a large number of wild barberries in that section which were badly infected. (Jackson, June 27).

Illinois: Only in a few cases have we found the barberry heavily rusted, but it is of interest to note that the rust is becoming heavier on the barberry as our work approaches the shores of Lake Michigan. (L. R. Tehon, Cereal Courier 13: 96. June 10).

Michigan: The most severe infections of barberry bushes in Michigan have been found this year. (W. F. Reddy, Cereal Courier 13: 97. June 10).

Wisconsin: Every barberry found this month showed rust more or less abundantly, but only one instance of stem rust on a grain was discovered. That was at Trempealeau on May 30. (Neol F. Thompson, Cereal Courier 13: 98. June 10).

Minnesota: The search for stem rust has been carried on extensively. Rust on common barberry was reported for the first time on April 25 from Jackson County and, on the following day, was found in Watonwan County. No uredinial infections have been found in the field by the scouts in Minnesota. (Leonard W. Melander, Cereal Courier 13: 85. May 20).

South Dakota: Black rust made its appearance on the Brookings station for the first time last Thursday. A close observation from day to day had not revealed it before that time. It was found on Kharkoff wheat and was not found on any other wheat. Thus far it has not appeared on any other wheat. This is in part due probably to the fact that the season has been very dry here for the past two or three weeks. (Arthur T. Evans, June 28).

I have just returned from a trip west of the river. I did not find a trace of rust in the regions in which I visited. I was surprised to find that there was no rust even as near to Brookings as Highmore. (Arthur T. Evans, July 2).

During the month of May we have found the rust on barberries developing quite generally in moderate amounts, wherever we have found barberries. In one or two instances very severe infection was found. The first aecia were found on May 5 at Flandreau, and the first mature aecia on May 13. Since that time only matured infection has been found. We have watched carefully for the red stage of the disease on grains and grasses, but as yet have been unable to find it. (H. C. Gilbert, Cereal Courier 13: 102. June 10.).

Colorado: The first infections on barberry in this state were found at Longmont, May 31. On June 3, infection was found north of Fort Collins. Some rust on grains has been reported in the northeastern part of the state near Sterling. (John R. Fitzimmons, Cereal Courier 13: 100. June 10.).

Leaf rust caused by Puccinia triticina.

All reports concerning leaf rust indicate that it has been much more important than usual this year. Reports from Delaware, Arkansas, Indiana, and South Dakota indicate that the disease is severe in those states. Leaf rust is said by E. C. Stakman and W. N. Christopher to be fairly prevalent but not destructive in the vicinity of Saltillo and Piedras Negras, Coahuila, Mexico.

According to A. F. Swanson (Cereal Courier, June 20, page 113) Kanred wheat shows marked resistance to leaf rust. Kanred and Blackhull Turkey varieties are said to be resistant in Oklahoma, having usually about 10% infection as compared with 40-65% for other varieties.

New York: Leaf rust is very bad in many fields. It is particularly so on station grounds and in some other places that I have visited. (H. H. Love, (Ithaca) Cereal Courier 13: 111. June 20.)

Delaware: First reported this season April 8. Considerable infection was found on young plants as late as December last year. Has been very severe this season. Fields appeared prematurely ripening as result of severe leaf infection. Infection on glumes common and many fruits found with sori at crown. (Manns, July 1.).

Virginia: More epidemic than I have ever observed it before. Especially severe on early sown wheat. This injury combined with that caused by late frosts probably caused greater reduction in yield than any other single agency. (Fromme, July 1).

West Virginia: The disease was unusually destructive in the southern Ohio valley and certainly caused considerable loss there. We have evidence from growers, county agents, specimens submitted, and a personal visit to the section by Mr. Berg. (Giddings, July 1).

Ohio: General over state, serious in spots. First observed May 26 in southern Ohio. (Clayton, June 15.).

Illinois: The men engaged on flag smut survey in the bottom lands of the

Mississippi River during May and June found leaf rust very abundant and according to growers it was much more serious than usual. In many fields the wheat kernels were slightly shriveled and the heads were not entirely filled. Leaf rust may have been partially, but probably not wholly responsible for this condition. (Haskell, June 28).

Indiana: Leaf rust has been very severe, more so I think than any year I have been in Indiana. It is practically universally present, so much so as to be commented on in the papers, and has attracted a good deal of attention. Opinions differ as to the loss and it is of course very difficult to get at anything tangible in this connection. I am convinced, however, that there has been considerable loss from the leaf rust this year, particularly where the infection occurred early. (Jackson, June 27).

Arkansas: Apparently less than usual, but in some parts of the state the wheat was entirely destroyed by this rust. (Elliott, July 1).

South Dakota: Leaf rust is very abundant. In many cases it is doing serious injury to the grain I feel sure. On many of our plots every leaf is dead yet the grain seems to be filling rather well. I can't conceive, however, of its filling entirely without shriveling under these conditions. (Evans, June 28).

Nebraska: Abundance of rain has resulted in a heavy development of orange leaf rust. (Bureau of Crop Estimates Crop Notes, week ending June 11.).

Scab caused by Fusarium sp.

Scab is less prevalent than usual this year, according to reports received, although in parts of West Virginia and Ohio rather heavy infections were observed. In Virginia and Tennessee dry weather at the time of blooming was mentioned as a probable cause of the unusually slight damage.

Virginia: Occurred only in very slight amounts this year. There were very few rains during blooming period. (Fromme, July 1).

West Virginia: Scab is possibly a trifle more destructive than last year but far less injurious than in 1918-19. (Giddings, July 1).

During my recent survey for cereal diseases I included the counties of Pocahontas, Greenbrier, Summers, Wood, Marion, and Mason. In Pocahontas County the wheat was just coming into bloom and I could obtain no scab data. In Greenbrier County I found scab well distributed, infection showing from a trace to as high as 10%. In Summers County scab infection is generally distributed and rather severe. In one field an infection of at least 20% was observed - the damage to the head varying from infection in one spikelet to practically the whole head being destroyed. In Wood County I found only traces of scab on the hill farms, but on the bottom farms, scab infection was considerably higher. In Marion County few fields were seen but indications are practically similar to those in Wood County. In Mason a very general infection of scab was found, averaging about 5%. (Sherwood, June 24).

Tennessee: (Observations made during April, May, and June in the vicinity of Knoxville, Murfreesboro, Columbia, Nashville, Jackson, and Union City). Wheat scab infection was extremely small, in most of the fields only occasional specimens, and then not very conspicuous, could be found. No field was observed that was affected with the disease to any serious extent. Extremely dry weather during the time of blooming and during maturity of the wheat is the probable explanation of the low infection with the scab. (Sherbakoff, June 15).

Ohio: General in southern Ohio; of slight importance - 1-3% of heads affected. First observed June 6 in southeast Ohio. (Clayton, June 15).

The counties of Coshocton, Muskingum, Ross, Pickaway, Darke, and Van Wert were visited. I was somewhat surprised to find disease conditions so serious in Ross County. Wheat fields in the overflow lands of the valleys were all badly infected with wheat scab. In some cases infection was 15%. It was interesting also to note that in general throughout Ross County the rotation corn, wheat, and clover was quite universally followed. The same general situation prevailed in southern Pickaway, such as I had opportunity to investigate. Farther north in Van Wert County scab is very much less noticeable. I am quite positive that wherever I investigated fields where a longer rotation is employed, namely; corn, oats, wheat, and clover, or corn, oats, tobacco, wheat, and clover, also where some other legume, such as alfalfa, soy beans, or sweet clover is introduced into the rotation, scab infections were very much lower. (Thomas, June 27).

Indiana: Scab is present in small percentages in nearly all fields, but it is not doing as much damage as usual, possibly about the same as last year. There is some evidence of anthracnose, particularly on rye, though I have not seen very much on wheat. (Jackson) June 27).

Iowa: Spring wheat considerably affected by red rust and scab. (National Weather and Crop Bulletin, week ending June 28).

South Dakota: Wheat scab is here in slight quantities. (Evans, June 28).

Anthracnose caused by Colletotrichum cereale.

Anthracnose of wheat has been reported from Virginia, Tennessee, and Indiana. The damage is said to be slight, although in one field in Brunswick County, Virginia the disease was causing falling of the plants in well defined spots 2-4 feet in diameter.

Glume blotch and leaf spot caused by Septoria spp.

Infection with one or both of the Septoria diseases is rather general in most states reporting their presence. In Virginia and Arkansas the glume blotch is reported as causing serious damage, in some localities at least. Both the leaf spot and glume blotch occurred in West Virginia and Tennessee. In the latter state both diseases were common, but the glume blotch was thought to be the more important. Septoria sp. was reported from North Carolina where it was said to be common but not causing much damage, and from California where it caused damage to early wheat in the Sacramento Valley as early as March.

Virginia: General in fields near Chatham, Pittsylvania County, on heads, leaves, and stems. Some plants were stunted and deformed. Infection of rachis on some heads produced a condition resembling Fusarium blight. Seemed to have caused considerable reduction in yield in worstfields. (Fromme, July 1).

West Virginia: In Summers County in several low-lying fields the Septoria glume blotch and leaf blotch are very common. In Mason County Septoria glume blotch is very general. (Sherwood, June 24).

Tennessee: (Observations made during April, May, and June in the vicinity of Knoxville, Murfreesboro, Columbia, Nashville, Jackson, and Union City.) Glume blotch was common in most of the wheat fields examined at the end

of May and early in June, the number of the heads affected varying from a trace to about 30%, with the average about 2%. How much damage had been done by the disease we hope to determine, at least approximately, by comparative weight of grain from diseased and healthy heads at the time of threshing the wheat. (Sherbakoff, June 15).

Arkansas: Common and apparently rather severe. (Elliott, July 1).

Powdery mildew caused by Erysiphe graminis.

Powdery mildew has been reported from Delaware and West Virginia. In the former state it was said to be associated with considerable yellowing but not seriously affecting growth.

Disease caused by Leptosphaeria sp.

Leptosphaeria sp. has been identified by A. G. Johnson on wheat from the Plant Introduction Garden at Chico and elsewhere in California. According to W. W. Mackie this disease is common in the Sacramento Valley, this year and causes as much as 15 or 20% loss in some fields. The disease may cause the death of the plants, reduce the number of tillers, or induce premature ripening with consequent loss of crop.

Root rots caused by various organisms.

A Fusarium root-rot was reported from California by W. W. Mackie, who found the disease to be causing more or less damage in nearly all the wheat and barley fields visited south of Davis. In some instances the reduction in yield was estimated at 20-25%, but it was usually about 5% or less. Symptoms of the disease were weakened culms, death or early maturity of the plants, pink discolorations of roots and culms, and shriveled kernels.

"Whiteheads", a disease of wheat, barley, and rye, which seems to be due to a serious undetermined root-rot similar in its effects to the so-called take-all, is reported by Robert Stratton as very common in Oklahoma, being present in varying amounts in many fields, and causing losses ranging from a trace to over 20%, averaging about 2%. The disease usually occurs in spots which are apparently associated with manure and are largest in fields where the wheat was pastured, and is said to become more serious each year in fields continuously planted to wheat. In many, but not all, of the spots a joint worm was found apparently contributing to the injury. In many cases the entire head of grain was destroyed.

A root rot of wheat has been reported from two places in Idaho and is being investigated by C. W. Hungerford. No details are available at this time.

A considerable amount of root-rot of wheat and barley, apparently due to Helminthosporium sp. and Fusarium sp. was found in several counties in Minnesota by J. J. Christensen.

RYE

Stem rust caused by Puccinia graminis.

No reports of stem rust of rye have been received.

Leaf rust caused by Puccinia dispersa.

Leaf rust has been reported only from Virginia, where it was said to be more common than usual but apparently not destructive, and from Missouri, where it occurred on the Station plats at Columbia.

Anthracnose caused by Colletotrichum cereale.

Anthracnose was reported by J. B. Kendrick as causing a serious crown-rot of rye in several fields in Porter County, especially in one 50-acre field of Rosen rye where it had killed from 40-60% of the plants. In other fields from 8-10% of the rye was dead. The stalks were dead at the crown and infection of the heads was common.

Head smut caused by Ustilago sp.

Three heads of this smut were collected on volunteer rye in a wheat field near Ithaca, New York on July 6 by R. J. Haskell and R. S. Kirby. A later and more careful inspection of the field by Kirby, Fitzpatrick, and Welch revealed twelve diseased plants with twenty infected heads. This is the first report of head smut of rye for New York.

Ergot caused by Claviceps purpurea.

Ergot has been reported only from Ohio where it is of general occurrence but slight importance. It was first observed June 10 in the southern part of the state.

Root-rot, cause undetermined.

An undetermined root-rot, apparently new, was observed by H. S. Jackson during June in Starke County, Indiana. The disease appeared in large patches and caused the death of the plants shortly after heading out. Although the effects of the disease resembled those of severe infection with anthracnose, that fungus was not found. There was no evidence of any fruiting bodies of any causal fungus. The trouble deserves further investigation.

The disease known as "whiteheads" which was reported on wheat from Oklahoma, occurs on rye also, according to Robert Stratton.

BARLEY

Scald caused by Rhynchosporium graminicola.

Barley scald was prevalent during March in early and volunteer fields in California, according to W. W. Mackie, but was later checked by drought and while early fields were severely injured late sown fields escaped with much less damage. Tennessee Winter barley is said to be resistant to scald in California.

Root-rots caused by various fungi.

In Minnesota a root-rot of wheat and barley which was apparently caused by Helminthosporium sp. and Fusarium sp. was found by J. J. Christensen in several counties.

"Whiteheads", a disease of wheat, rye, and barley, was reported from Oklahoma by Robert Stratton. (See wheat).

A Fusarium root-rot of wheat and barley which occurred in California is reported under wheat.

APPLE

Scab caused by Venturia inaecualis.

Scab is said to be prevalent and rather serious in Arkansas, Indiana, and Kansas on the foliage and in northern Idaho on both fruit and leaves, as well as in parts of New York and Ohio, as indicated in the preceding issue of this Bulletin. In Arkansas and Indiana favorable weather and failure of growers to spray resulted in particularly severe infection. In New Jersey the disease is said to be very abundant in some orchards. In West Virginia, although generally distributed, it is not so severe as last year according to Giddings, and both spraying and dusting have given satisfactory control. Only slight infection is reported from Nebraska. Very little of this disease had been noted during the past two years in Idaho, but this year Hungerford reports it to be very abundant in unsprayed orchards in the northern part of the state.

Blotch caused by Phyllosticta solitaria.

Blotch is said to be severe in Arkansas in sections where apples are grown for the local markets. It is also reported from Ohio, where it is serious on susceptible varieties having fruit. Specimens have been collected in Pike, Lawrence, and Franklin Counties, which are north of the usual range of the disease in Ohio. It was first observed in the southwestern part of the state on June 13.

Fire blight caused by Bacillus amylovorus.

Fire blight is said to be common in Kentucky and southeastern Indiana; less important than usual in Arkansas, Ohio, and Kansas; and negligible in West Virginia, Louisiana, and Nebraska. Some local injury is caused by it in West Virginia and Ohio, particularly as blossom blight in the latter state, although the twig blight is more general. In New York also, according to reports of field men of the State College of Agriculture, it is locally serious, especially in young orchards, in Genesee County and in New Jersey it is said to be very abundant on some varieties. Reports of the Bureau of Crop Estimates indicate that it is causing some damage in South Carolina and Wisconsin.

The spring frosts, which killed pear blossoms and limited the sources of infection, are thought to be largely responsible for the reduced amount of the disease on apples as well as pears in Ohio this year.

The varieties King, York, and Imperial were reported from Genesee County, New York as seemingly very susceptible to fire-blight.

West Virginia: Fire blight injury is practically negligible in the state as a whole, but has caused some injury locally and particularly in towns.

Ohio: We are able to report again as to reduced fire blight infection upon apple in Ohio for 1921. The freezing appears to have limited sources of infection by killing pear fruits in bloom. "Blossom" infection is locally severe though decidedly restricted. "Twig" infection is rather slight though quite general on susceptible varieties. Very severe blossom infection studied in Trumbull County by a visit in June, presented a problem of control by spraying to kill red bug and leaf hopper through application of nicotine sulphate in spray of weaker Bordeaux since number of spurs to be removed was without reasonable limit. Similar infection was reported from localities in adjacent counties. Outcome of the spraying is yet to be studied. (Selby, July 1).

Blister canker caused by Nummularia discreta.

Blister canker has been reported from Ulster County, New York, where it was abundant in several Ben Davis orchards on April 25; and from Ohio, where it is increasing in severity on older trees, especially in the southern part of the state. Removal of infected branches before the buds swell is recommended as a control measure by Selby in Ohio.

Black rot caused by Sphaeropsis malorum.

The frog-eye leafspot has been reported from Connecticut, New York, West Virginia, Ohio, and Indiana. In New York, West Virginia, and Indiana it is said to be prevalent on unsprayed trees, causing defoliation in some orchards.

Calyx-end rot has been reported from Indiana.

Cedar rust caused by Gymnosporangium juniperi-virginianae.

No reports on cedar rust have been received from Virginia as yet but those from other states indicate that it is causing little damage except locally in New York and West Virginia. It has, thus far , been reported from Connecticut, New York, Maryland, West Virginia, and Ohio. In West Virginia, although conditions were particularly favorable to heavy rust infection, the disease is causing practically no injury in commercial sections, due probably to the eradication of cedars. In the southeastern part of the state, however, it is said that the amount of rust has increased noticeably during the past few years.

At Leland, Maryland, the first telial horns were observed during the rainy period of April 23. The disease was first noticed in West Virginia about April 25; in Ohio on June 6, in the southeastern portion.

PEAR

Fire blight caused by Bacillus amylovorus.

Blight has been reported from New York, South Carolina, Georgia, Ohio, and

Arizona. In New York, according to reports of field men of the State College of Agriculture, it is locally rather severe in several counties, and in Ulster County it is said to be abundant in most orchards. In Ohio it was first observed May 25, in the southern part of the state, and is now general and quite serious, according to Clayton. Twig blight was reported as serious at Winkleman, Arizona, on June 3, but the disease has not been recorded from other localities in that state as yet.

PEACH

Brown rot caused by Sclerotinia cinerea.

Reports of brown rot from New York, Tennessee, South Carolina, Texas, and Indiana, are given below.

No field reports of brown rot have been received from Georgia but inspectors of the Bureau of Markets found the disease in 131 cars of Georgia peaches inspected at destination during May and June. The average amount was about 13%.

New York: April 18 - Wayne County - Brown rot mummies in shape to discharge spores during rainy periods.

April 25 - Orleans County - Brown rot shows considerable activity in peach orchards.

Ulster County - No brown rot infections observed to date.

May 16 - Orleans County - Twig blight rather serious on peaches from blossom infection.

Ulster County - Some old brown rot blossom blight has been observed.

May 23 - Orleans County - Twig blight serious in many orchards.

May 31 - Orleans County - Very marked results where pink spray applied for twig or blossom blight. Very little rot where applied.

June 13 - Wayne County - Showing up in some cases.

July 11 - Ulster County - Showing up considerably due to hot muggy weather of the past week. (New York State College of Agriculture Weekly News Letter.)

Tennessee: Brown rot has been relatively unimportant thus far. Blossom blight, which was so abundant in 1920 was reported from three counties only. Twig and leaf blight were reported from three counties. Cankers were reported from four counties. Complaints of severe damage have not thus far been made. (Hesler, June 9).

South Carolina: Damage to early peaches probably about 5%. Less severe than usual at present owing to the prevailing dry weather. There was a serious blossom infection in one or two localities. This is our worst peach disease. No system of treatment seems to have been devised which will give control in a year favorable to the disease. (Ludwig, July 1).

Texas: Very prevalent. Wet season. Five percent loss. (Taubenhaus, July 1).

Indiana: Considerable on what few peaches there are in the state. (Gardner, July 1).

Scab caused by Cladosporium carpophilum.

Scab is said to be prevalent in Texas and causing a loss which will probably amount to about 1%. In Indiana, according to Gardner, it is especially

severe on twigs of southern grown nursery stock. No other reports of damage due to scab have been received.

Leaf curl caused by Exoascus deformans.

Leaf curl is apparently less important this year than last, although in New York and Indiana it is said to be severe in unsprayed orchards, or those sprayed too late. In Tennessee the reduced prevalence of leaf curl is thought to be due to dry weather at the opening of the buds. The disease has also been reported from Connecticut, South Carolina, Texas, Ohio, Michigan, Nebraska, and Kansas, in slight amounts.

Tennessee: Curl was very much less prevalent than in 1920, owing to the dry weather at the opening of buds. A survey of 18 counties shows that while there were traces of the disease present, practically no damage was done. (Hesler, June 9).

Ohio: While the infection is recognized to be widespread, attacks are less serious this year than normal. Excellent control has been noted in orchards sprayed with the dormant spray. (Thomas, July 1).

Indiana: Very destructive and prevalent on unsprayed trees. Not as bad as in 1920. (Gardner, July 1).

Black spot caused by Bacterium pruni.

Severe damage due to black spot is reported from Indiana, in the vicinity of Vincennes, and in Texas also the disease is prevalent and is causing some loss. Black spot is thought to be much less general in Ohio than was the case last year. It occurs in South Carolina but is causing only slight injury, according to Ludwig.

Ohio: Black spot has been noted in some orchards but seems to be somewhat localized. The general widespread infections such as occurred last season are not found this year. It is thought that the presence of the disease is far less than normal. (Thomas, July 1).

Indiana: Extremely severe in many orchards about Vincennes. Limiting factor in that region. Caused conspicuous blighting of 1921 twigs in May. Already has caused extensive defoliation and spotting of fruit. (Gardner, July 1).

Gummosis (cause undetermined).

A gummosis of unknown cause, apparently physiological, is reported from Ohio as follows:

> "Many reports have come to our attention accompanied by specimens of a peculiar gummosis trouble found in many peach orchards. Repeated attempts at isolation of the organism have been unsuccessful. It is thought to be a physiological condition."

Rosette (cause unknown).

The following report of rosette has been received from South Carolina:

"Trees showing symptoms similar to those described by Dr. E. F. Smith some years ago and attributed to rosette have appeared in a few orchards."

STRAWBERRY

Leaf spot caused by Mycosphaerella fragariae.

Mycosphaerella leaf spot seems to be causing little injury this year in most states.

New Hampshire: Present in most fields but owing to dry weather not as abundant as usual. (Butler, July 1).
New Jersey: Common and apparently destructive in some cases. (Cook, July 1).
Delaware: Very prevalent in fields not sprayed. Where beds are dusted or sprayed good control of leaf spot is secured. (Manns, July 1).
West Virginia: Observed in eastern and northern part of the state, but not destructive. (Giddings, July 1).
South Carolina: Present. Damage slight. (Ludwig, July 1).
Louisiana: More or less common but causing but little loss except on susceptible varieties. The Klondyke, which is largely grown in this state, shows considerable resistance. (Edgerton, July 1).
Texas: Traces. Unimportant, this year. (Taubenhaus, July 1).
Ohio: In old patches this disease has been found to be severe even in recent plantings. The leaf spot is the only strawberry disease which demands attention this year. Where spraying is practiced as a means of control, excellent results are obtained. (Thomas, July 1).
Indiana: Generally prevalent this year. (Gardner, July 1).
Nebraska: Slight amount of infection. (Goss, July 1).
Kansas: Not very common. Not doing any damage. (Melchers, July 1).
Colorado: No report has been received regarding this disease. I have noticed it in some of the gardens about Fort Collins, but in no instance causing any damage. (Learn, July 1).
Arizona: Reported as yet only from Jerome Junction, Yavapai County. Very dry year. (Brown, June).
Idaho: Some noted - not serious. (Hungerford, July 1).

Gray mold rot caused by Botrytis sp.

Gray mold rot has been reported only from Delaware, where it is said to be common and causing losses of 2-3%; and from Louisiana, where it is not serious, although common.

Rhizopus rot caused by Rhizopus nigricans.

This disease is said to be common in Delaware on overripe fields, causing losses of 5-10%; common but not serious in Louisiana; and prevalent in the field in Texas due to the wet season.

Leaf scorch caused by Mollisia caeliana (Marssonia potentillae fragariae)

The following report of leaf scorch has been received from Louisiana:

"Very common and apparently causing more loss than the regular leaf spot."

Fruit rot caused by Patellina fragariae.

This fruit rot was reported from Louisiana as follows:

"Very common and causing some loss. The loss from all the fruit rots has been less than 10%"

FIELD AND VEGETABLE CROPS

BEAN

Bacterial blight caused by Bacterium phaseoli.

New Jersey: Present. Not severe. (Cook, July 1).
Virginia: Reported from Pulaski and Orange Counties and also found in slight amounts at Blacksburg. (Fromme, July 1).
Texas: Considerable blight, especially on late planting. Ten per cent loss. (Taubenhaus, July 1).

Anthracnose caused by Colletotrichum lindemuthianum.

Anthracnose has been reported from New Hampshire, New Jersey, West Virginia, South Carolina, and Texas, in all cases as of slight importance.

New Hampshire: Present in fields but dry weather has prevented any material development. (Butler, July 1).
Virginia: None observed to date, but no doubt present. (Fromme, July 1).
West Virginia: Reported from several sections as injuring the young plants. I believe, however, that it is being confused with the stem rot, although there was quite a little anthracnose on cotyledon leaves in gardens around here. (Giddings, July 1).
Texas: Traces. Unimportant since the beans were picked early before the wet season struck them. (Taubenhaus, July 1).

Mosaic (cause undetermined).

Arkansas: Some mosaic has been observed. (Elliott, July 1).
California: Showing up on Lady Washington and Red Mexican, and Kentucky Wonder varieties, severe in all cases. Mostly southern California. (Milbrath, July 1).

Stem rots caused by various organisms.

Fusarium stem rots have been reported from West Virginia and California; and stem rot caused by Rhizoctonia sp. from Texas.

West Virginia: Reported as quite destructive in many gardens in the northern part of the state. Specimens submitted were quite typical of the Fusarium rot described by Burkholder. (Giddings, July 1).
Texas: Serious. Three per cent loss. (Taubenhaus, July 1).
California: In Los Angeles County very severe on Lima and large white varieties. Some acreages plowed under. Fusarium appears to be the cause. Old bean land largely attacked. (Milbrath, July 1).

CABBAGE AND CAULIFLOWER

Club root caused by Plasmodiophora brassicae.

Club root has so far been reported only from New Jersey and West Virginia.

New Jersey: Present and severe in some cases. (Cook, July 1).
West Virginia: Mr. Sherwood has just returned from a trip and reports a large amount of cabbage club root in some gardens in the northwestern part of the state. (Giddings, July 2).

Yellows caused by Fusarium conglutinans.

Yellows seems to be causing considerable damage where it occurs.

Virginia: First noted June 6 at Marion. Probably general as usual in southwestern part of state. (Fromme, July 1).
Kentucky: Considerable injury in fields at Louisville to early crop. Loss 30-60%. (Valleau, July 1).
Texas: Very prevalent. About 5% loss. (Taubenhaus, July 1).
Ohio: Very serious locally in central and southern Ohio. First observed June 9, central Ohio. (Clayton, June 15).
Arkansas: Very common. Our most severe cabbage disease. (Elliott, July 1).

Black leg caused by Phoma lingam.

Black leg is said to be common in Orange County, Virginia; common and severe in Arkansas; and is also reported from New Jersey.

Ring spot caused by Mycosphaerella brassicicola.

Ring spot was reported from California in April:

"The Colma district so-called includes Ingleside and Spring Valley in San Francisco County, and South San Francisco, Daly City, Millbrae, Colma, San Bruno in San Mateo County. Also trucks make hauls into Colma

from as far south as Half Moon Bay, a distance of 25 miles. The district is largely settled by Italians. Ring spot appears on cabbage, cauliflower, and broccoli and apparently with no difference in varieties affected. It has been prevalent for years and is attributed entirely to the weather. The amount of infection varies somewhat with the season. No control measures are practiced so far as I could determine. The heavily infected leaves are left in the fields which may account for the general dissemination of the disease and may also explain why the young plants seen about April 1 are so generally infected. My attention was called to the trouble along in January but probably it could have been observed as early as December 1 of last year. The reduction in yield would be difficult even to estimate. The cold foggy days in this region undoubtedly favor the disease. The cold foggy weather is alternated with clear warm days." (W. S. Fields, April).

"Recently I made a trip through sections of the central portion of the state. In the cabbage and cauliflower section south of San Francisco, ring spot was found generally (100% severe infection). I saw broccoli fields which had been abandoned on account of injury by this disease." (Milbrath, April 15. New Notes of the Office of Cotton, Truck, and Forage Crop Disease Investigations, May 7: 5).

ONION

Downy mildew caused by Peronospora schleideni.

Downy mildew is said to be very prevalent and causing considerable damage to onions and shallots in Louisiana, the only state which has so far reported its occurrence.

Pink root caused by Fusarium mallii.

California: About 1000 acres in Delta region severely infected with result that total loss may result. (Milbrath, July 1).

Black mold caused by Macrosporium parasiticum.

Louisiana: Very common as usual on the seed onion. This disease together with the downy mildew has decreased the seed crop about 50%. (Edgerton, July 1)

TOBACCO

Dr. James Johnson, of the Agricultural Experiment Station at Madison, Wisconsin, is conducting a survey for tobacco diseases in the United States. Any assistance which collaborators and others can give will be appreciated. Notes and specimens may be sent to this office or directly to Dr. Johnson.

Wildfire caused by Bacterium tobacum.

The following report of July 5, from C. R. Orton, is the first of the presence of wildfire in Pennsylvania.

> "Wildfire of tobacco has been located in Lancaster County, Pennsylvania. The infection appeared some weeks ago in the seed bed and since then a hurried but fairly comprehensive survey has been conducted in the county, and the disease found in six farms near Lititz. Later survey work is contemplated at about 'topping' time. This is the first report of this disease in Pennsylvania, I think, though one of the growers is certain that it occurred on his farm last year."

Two letters recently received by F. D. Fromme indicate the presence of wildfire, or a similar leaf disease, in southern Rhodesia and in Nyasaland, Central Africa; and a disease strongly resembling wildfire occurs in the Piet Retief District and the Rustenberg District in the Union of South Africa, according to a report in the Journal of the Department of Agriculture of the Union of South Africa, April, 1921. All of these reports state that the disease referred to causes considerable damage.

Wilt caused by Fusarium oxysporium nicotianae.

This disease was described by James Johnson in the Journal of Agricultural Research for January 3, 1921. It was found in 1916 near Benedict, and in 1917 near Newport, both in Charles County, Maryland, and in 1919 specimens were received from Owensville, Clermont County, Ohio.

Collaborators are asked to watch for the occurrence of Fusarium wilt in their states this year.

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